

ABSTRACT OF THE DISCLOSURE

[0109] A refracture-candidate diagnostic test is an injection of compressible or slightly compressible fluid such as liquid, gas, or combination at pressures in excess of minimum in-situ stress and formation fracture pressure with pressure decline following injection test recorded to detect a fracture retaining residual width from previous stimulation treatments. The diagnostic consists of small volume injections with injection time being a small fraction of time required for compressible or slightly compressible reservoir fluid to exhibit pseudoradial flow. The fracture-injection portion of a test can be considered as occurring instantaneously, and the results obtained in an open infinite-conductivity hydraulic fracture with pressures above fracture closure stress during before-closure portion of pressure falloff and with pressures less than fracture closure stress during after-closure portion of pressure falloff. Data measurements are transformed into a constant rate equivalent pressure transformation to obtain adjusted pressures or adjusted pseudovariables which are analyzed to identify dual unit-slope before and after closure periods confirming a residual retaining width.